Assessment of Current Trends and Projected Conditions

New York City and LGA Access Study
Air Travelers’ Terminology

Air Travelers Anxieties

• **MMFA** – Missing-My-Flight-Anxiety
• **MMMA** – Missing-My-Meeting-Anxiety

Budgeted Travel Time

• A time travelers calculate as necessary to arrive at the airport on time to catch a flight.
• We identified the 95th percentile of the measured travel times as the Budgeted Travel Time.
The Assignment

Estimating Travel Times in 2045 accounting for the growth in app-based rides (Transportation Network Companies [TNC]) and the advent of Autonomous Vehicles.
Vehicle speeds in Manhattan core have plummeted in recent years, adding to travel time uncertainty.

Average Annual Weekday Travel Speed in the Midtown Core and the CBD, 2010-2017 (weekdays, 8am-6pm, excluding major holidays)

Data Source: NYCDOT, 2018 Mobility Report; based on Average Taxi Speed Data
Extreme travel times to & from LGA have worsened since 2014

95th Percentile of the daily maximum travel times between Queens-Midtown Tunnel and LGA, 2014-2017.

Data Source: TRANSCOM
TRAFFIC UNCERTAINTY

Daily 95th percentile vehicle travel times, 2014-2017

Data Source: TLC; data obtained from taxis’ GPS locations

Data cleaned to remove any days during which on-airport traffic conditions led to delays on the off-airport roadway network
TRAFFIC UNCERTAINTY

Max travel times between Times Square and LGA
The 95th percentile increased from 55 to 65 minutes (18%) between 2014 and 2017.

Daily 95th percentile vehicle travel times, 2014 and 2017

Data Source: TLC; data obtained from taxis’ GPS locations
Data cleaned to remove any days during which on-airport traffic conditions led to delays on the off-airport roadway network.
PROJECTING REGIONAL TRENDS

2045
Projected Change in Daily Vehicle Miles Traveled, by County
New York Best Practice Model (BPM)

Bronx: 9.1%
Brooklyn: 6.8%
Manhattan: 6.4%
Queens: 7.3%
Staten Island: 8.3%
Nassau: 12.1%
Suffolk: 13.8%
Putnam: 12.9%
Rockland: 23.0%
Westchester: 14.3%

Data Source: NYMTC
REGIONAL TRENDS - VHT

Daily Vehicle Hours Traveled, by NYC Boroughs 2017-2045
New York Best Practice Model (BPM)

Data Source: NYMTC
The BPM Adjusted Model Projections
Travel times that **do not take AVs and TNCs into account**

<table>
<thead>
<tr>
<th>Trip</th>
<th>Budgeted Travel Times (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
</tr>
<tr>
<td>Grand Central to LGA</td>
<td>61</td>
</tr>
<tr>
<td>LGA to Grand Central</td>
<td>62</td>
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<tr>
<td>Penn Station to LGA</td>
<td>74</td>
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<tr>
<td>LGA to Penn Station</td>
<td>70</td>
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<td>Financial District to LGA</td>
<td>76</td>
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<tr>
<td>LGA to Financial District</td>
<td>68</td>
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</tbody>
</table>

*Source: Port Authority of New York and New Jersey*
THE GROWTH OF TNC

New York City Monthly Taxi and TNC Pick Ups

TNC and Taxi Ridership in the U.S., 1990-2017
(annual ridership, in billions)

Schaller Consulting, 2018

Source: www.ToddWSchneider.com
Ride-hailing apps include Uber, Lyft, Juno, Via, and Gett;
Taxi data include both yellow and green taxis
The “TNC Revolution” gives a glimpse of the future with Autonomous Vehicles.

**AV shares of sales, fleet and travel**
**Projections 2020-2070**

Source: Autonomous Vehicle Implementation Predictions: Implications for Transport Planning Victoria Transport Policy Institute, 2018
MODEL ASSUMPTIONS

• TNC mode split will reach 50% by 2045

• AV market share will reach 50% by 2045

• AVs will induce 7.5% more VMT

• AVs will add 20% capacity on highways

• AVs will reduce capacity by 10% on urban streets
MODELING PROCESS OVERVIEW

BPM 2045 Projections

#1 Adjusted 2045 Projections

#2 Change in VMT Induced by TNCs in 2045

#3 Change in VHT Following the Increase in VMT

#4 Change in Travel Time Following Increase in VHT

#5 \#1 + \#4 = Travel Time Projections Accounting for TNCs
MODELING PROCESS OVERVIEW (cont.)

#5 Travel Time Projections Accounting for TNCs

#6 AV VMT Impact and Market Share by 2045

#7 AV Travel-Time Impact Multiplier

#8 Change in Average Travel Time

#9 Average- to Budgeted Travel Time Multiplier

#10 Budgeted Travel Time to LGA Accounting for TNC and AV in 2045
Travel times between LGA and Manhattan’s CBD by 2045 will soar **even without accounting for further growth in TNCs and the introduction of AVs.**

2017 and 2045 Budgeted travel times that do not take AVs & TNCs into account.
Accounting for the trends in TNCs, budgeted travel times will reach **130 minutes** in 2045, more than double the times in 2017.

**2017 and 2045 Budgeted travel times that do not take AVs & TNCs into account.**

**2045 Budgeted travel times accounting for TNC growth.**
Even with the future introduction of AVs, 2045 budgeted travel times to and from LGA are projected to exceed 2 hours.

2017 and 2045 Budgeted travel times that do not take AVs & TNCs into account.

2045 Budgeted travel times accounting for TNC growth.

2045 Budgeted travel times accounting for TNC growth and AV introduction.
Questions & Discussion
THANK YOU!

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